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Arcyriatella congregata from Mexico: a second world record

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Abstract—The rare myxomycete *Arcyriatella congregata*, previously known only from Brazil, is redescribed from Mexican material. LM and SEM photographs of the most important micro- and macroscopic characters are provided.

Key words—chorology, *Mycetozoa*, myxobiota, Sinaloa, taxonomy

Introduction

Arcyriatella Hochg. & Gottsb. is a monotypic genus considered to be intermediate between *Arcyria* F.H. Wigg. and *Minakatella* G. Lister. It shares with *Arcyria* an evanescent peridium, which remains at the base of the pseudoaethalium, and a filamentous, reticulate capillitium. *Arcyriatella* is also close to *Minakatella* in its fructifications that assume the form of a pseudoaethalium, a strand-like hypothallus, and clustered spores (Hochgesand & Gottsberger 1989).

Arcyriatella congregata is known only from the state of Sao Paulo in Brazil, occurring on wood (Cavalcanti & al. 2014). Its taxonomic position is problematic, intermediate between the families *Trichiaceae* (Hochgesand & Gottsberger 1989, Keller & Braun 1999, Cavalcanti & al. 2014) and *Arcyriaceae* (Nannenga–Bremekamp 1991, Lado & Pando 1997, Neubert & al. 1993, Fiore-Donno & al. 2013 [as *Arcyriidae*]). We treat *Arcyriatella* as a member

of *Arcyriaceae*, pending molecular studies as proposed by Keller & Everhart (2008).

New material of *A. congregata* collected in the state of Sinoloa in Mexico provides additional information about this rare species and its distribution.

Materials & methods

Samples for light microscopy were mounted in Hoyer's medium. Macroscopic photographs were made with a Nikon SM2800 microscope, micrographs were obtained with a Nikon Eclipse 2000 microscope, and SEM micrographs were taken with a Zeiss DSM-950 microscope after critical point drying and sputtering, following the methods described by Moreno & al. (2015).

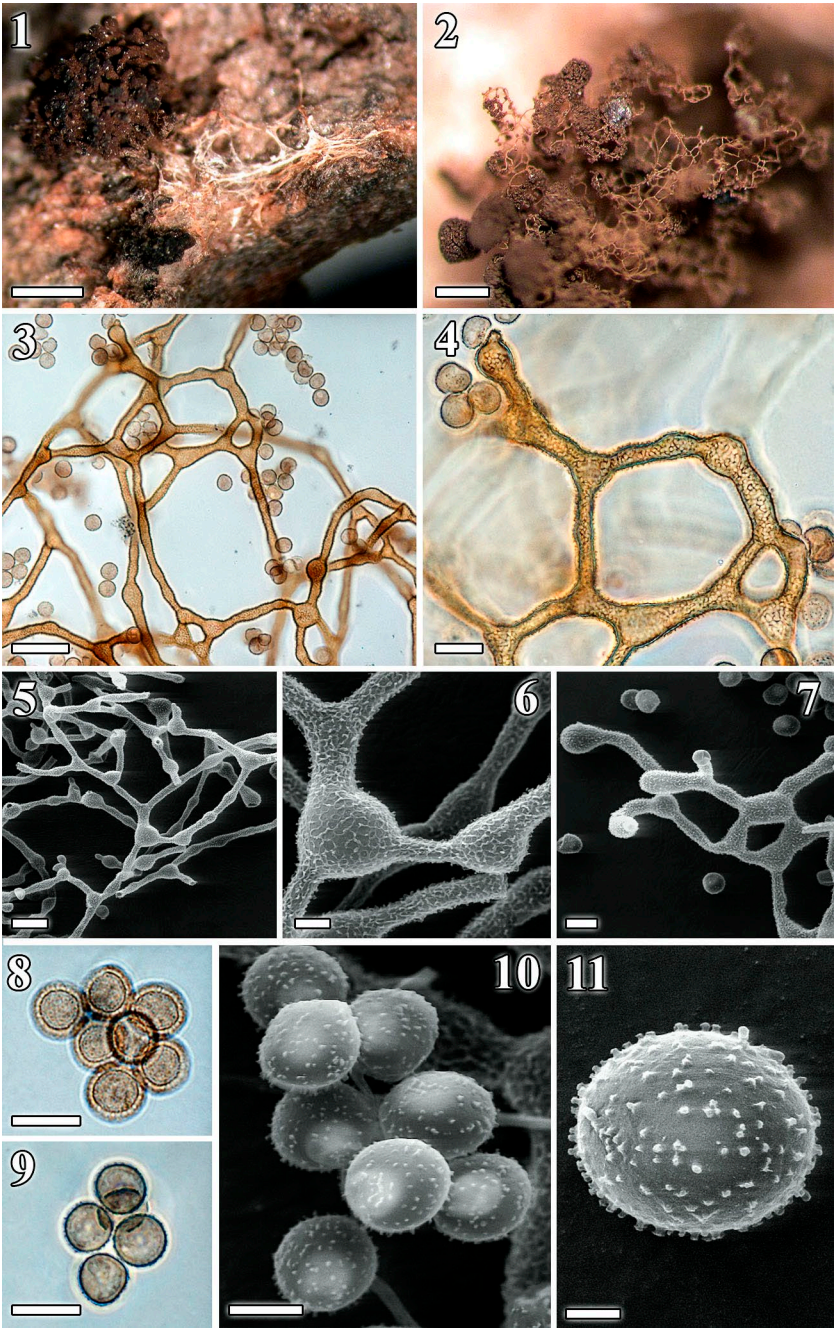
The specimens are stored in the Herbarium, Universidad de Alcalá, Alcalá de Henares, Spain (AH) and the Herbarium, Instituto de Ciencias Biomédicas, Juárez, Mexico (UACJ). Nomenclature follows Lado (2017).

Taxonomy

Arcyriatella congregata Hochg. & Gottsb.,
Nova Hedwigia 48: 486 (1989) Figs 1–11

Pseudoaethalium ferruginous brown to dark reddish brown, stalked, 1.5–2.5 × 0.8–1.5 × 1.5–2 mm, formed by tight fructifications, which are subcylindrical to subglobose, 0.1–0.3 mm diam., dark reddish brown, reminding one of a poorly developed *Stemonitis*. When mature they present a brownish to reddish brown capillitium, expanded in a very open net similar to *Arcyria*. Stalk membranous, expanded over the substrate or pendulate, light beige, being a continuation of the hypothallus (very similar to the condition found in *Minakatella longifila* G. Lister and *Badhamia utricularis* (Bull.) Berk.). Peridium membranous, evanescent, with metallic and iridescent tones, sometimes with portions remaining adhered to the stalk apex or to the fructification. Capillitium brownish, tubular, forming a net composed of filaments 4–6(–10) µm in diam. and meshes of very variable size, covered on the surface by abundant spines, internally reticulate to subreticulate as confirmed by SEM, with abundant nodes and broadened pyriform tips, subglobose, sometimes with a slight appendix. Spores dark brown in mass, clustered, easily separable, 8–10(–11) µm in diam., light brown, globose to subglobose, covered

Figs 1–11: *Arcyriatella congregata*. (UACJ 3314): 1. Pseudoaethalium. (AH 46297): 2. Detail showing a pseudoaethalium with evanescent peridium; 3, 5. Capillitium; 4, 6. Reticulate capillitium with abundant nodes; 7. Detail of nodes and tips of the capillitium; 8, 9. Grouped spores (LM); 10. Grouped spores (SEM). 11. Detail showing spore ornamentation. Scale bars: 1 = 1 mm; 2 = 0.5 mm; 3 = 25 µm; 4, 7–9 = 10 µm; 5 = 20 µm; 6, 10 = 5 µm; 11 = 2 µm.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by dispersed warts. Under SEM the spore ornamentation is very loose and formed by small baculae of irregular distribution.

Material examined: **MEXICO. Sinaloa**: **Mazatlán**, El Quelite, bark of *Pithecellobium dulce* (Roxb.) Benth., 29.III.2016, leg. M. Lizárraga: put into moist chamber 1.VIII.2016, obtained 19.VIII.2016 (UACJ 3314); put into moist chamber 1.VIII.2016, obtained 25.VIII.2016 (AH 46297).

Observations — Our material differs from the specimens described by Hochgesand & Gottsberger (1989), because in our material the stalk is a continuation of the hypothallus, which extends over the substrate, very similar to the hypothallus of *Minakatella longifila* (Keller & al. 1973). Under the microscope, the grouped spores are easily separated; groups of spores are rare, and most of the spores are free. The spores are smaller than those in the type material (10–12 µm; Hochgesand & Gottsberger 1989). The reason for these differences may be explained by our harvesting material in moist chambers, where the organisms experience different developmental conditions than exist in the field. However, the fructifications in the form of pseudoaethalia, the stalk, the capillitium with nodes and typical tips, and the clustered spores define the specimens as *Arcyriatella congregata*.

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